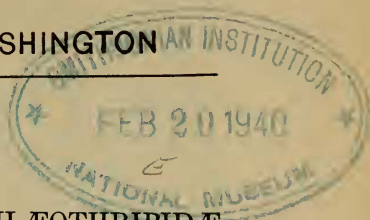


PROCEEDINGS
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A NEW GENUS AND SPECIES OF PHLÆOTHRIPIDÆ
(THYSANOPTERA) FROM PALMETTO.

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The types of this new species, from Florida, are in the author's collection.

ATTRACTOTHRIPS, gen. nov.

(*ἄτρακτος*, a spindle or arrow; *θρίψ*, a wood-worm—in allusion to the elongate form of the body.)

Head about twice as long as wide, prolonged in front of eyes, narrowed behind eyes and again just before base, the cheeks with about five pairs of strong lateral setigerous tubercles, the produced portion of head with a similar pair of lateral tubercles; postocular and remaining cephalic setæ small, all borne at the tips of tubercles, comprising (1) a pair between the median ocellus and the posterior ones, (2) a pair between the posterior ocelli, (3) a pair behind the posterior ocelli, (4) the postoculars, (5) an occipital pair about midway between posterior ocelli and base of head, and, in addition, several smaller dorso-lateral pairs; dorsal surface of head tuberculate throughout, not striate or reticulate. *Eyes* small, larger dorsally than ventrally, less than one-fifth the length of head, rather strongly protruding posteriorly, with several of the posterior facets enlarged and projecting beyond the general outline. *Ocelli* small, borne at the tip of distinct prominences and anterior in position, the median one overhanging, forwardly directed, and situated close to bases of antennæ, the posterior ones on a line with anterior margins of eyes. *Antennæ* eight-segmented, less than twice the length of the head, the first two segments broad, heavy, subequal in length, and with their setæ stout and arising from tubercles, the other segments slender, with small setæ and sense-cones, VIII not pedicellate. *Mouth-cone* broad, semicircularly rounded at tip; maxillary palpi long and stout. *Prothorax* less than half the length of head, flat, with a slight, overhanging, shelf-like production above anterior angles; setæ small and arising from tubercles, of which those supporting the epimerals, antero-angulars, and coxals are more conspicuous, the mid-laterals minute and arising close behind antero-angulars; pronotum sub-

reticulate anteriorly, tuberculate posteriorly. *Mesothorax* produced laterally at anterior angles and with a pair of conspicuous lateral setigerous tubercles just behind the processes. *Metathorax* rounded and somewhat swollen posteriorly, where it is broader than mesothorax. *Legs* rather short and stout, roughened with numerous tubercles of which those bearing setæ are largest; fore legs not enlarged, fore tarsi not toothed, in either sex. *Wings* very slender, with dark median vein extending nearly to tip in both pairs, the fore pair rather abruptly narrowed and somewhat bent forward beyond basal three-tenths, without accessory setæ and with the usual subbasal setæ wholly wanting. *Abdomen* long and slender, with segment IX short and X unusually long and slender, the latter segment much longer than head and prothorax together and without long clothing hairs; III-VII with one or two pairs of strongly projecting lateral setigerous tubercles near posterior angles.

Genotype: *Atractothrips bradleyi*, sp. nov.

This genus is one of the most distinct in the entire North American fauna. Though undoubtedly allied to such wholly Neotropical genera as *Actinothrips*, *Zactinothrips*, *Dasythrips*, and *Zeugmatothrips*, and clearly derived from a biocenter in the Neogaeic realm, its closest known relative appears rather to be the Malaysian genus *Holurothrips*. All of these genera have extremely long and slender tubes, produced heads, slender antennæ, unarmed fore tarsi, and, with the possible exception of *Holurothrips*, slender wings whose single vein is nearly complete. *Atractothrips*, however, has the second antennal segment as long as the first, instead of much shorter; the eighth is not narrowed at the base, but is conical and rather solidly connected with the seventh; the dorsal surface of the head and thorax is predominately tuberculate, instead of subreticulate or striate; the cephalic setæ all arise from distinct tubercles, of which those on the cheeks are large and conspicuous; the eyes are small, not at all even in outline, and with several larger facets laterally and posteriorly; and the anterior mesothoracic angles are produced in a peculiar manner.

***Atractothrips bradleyi*, sp. nov.**

Female, forma macroptera.—Length about 4.1 mm. (fully distended, about 4.5 mm.). Color, by *reflected* light, straw yellow, with white internal "pigmentation" in head, thorax, abdomen, and legs, that in head more conspicuous between eyes, that in prothorax, fore coxæ, and fore and hind femora making these parts nearly white, that in abdomen largely absent from the area covered by the wings when the latter are at rest, and absent, too, from the attachments of the tergo-sternal muscles, that in tube limited to the median basal portion; front of head and the ocellar prominences dark brown, sides of head narrowly margined with dark brown, sides of pterothorax and of first and ninth abdominal segments nearly black, tube dark brown, blackish apically; antennæ brown in segments I and II and blackish brown in VII and VIII, the intermediate segments yellow, with their distal thirds darkened with brown or blackish brown; middle femora nearly black at middle but yellowish white at either end, the hind femora with a small blackish area on dorsal surface near base; all tibiæ nearly

white at either end (the fore pair more extensively so at base) and with the larger intermediate portion nearly black; all tarsi brownish yellow with black cups; wings washed with gray, the nearly complete median vein in both pairs blackish brown, the fringes brown.¹ Color, by *transmitted* light, somewhat darker, due in part to the relative opacity of the white "pigment," which is no longer visible as such; head somewhat darker and more yellowish than prothorax; all setæ on body, legs, and antennæ white, excepting those at tip of tube, which are brown.²

Head about 2.1 times as long as greatest width (which is almost invariably at basal fourth), the width across eyes nearly or quite as great, cheeks narrowing behind eyes, roundly broadening to basal fourth, and narrowing roundly again toward the somewhat broader basal collar; produced portion in front of eyes somewhat more than half as wide as head at basal fourth, its sides straight but very slightly converging toward base, its length nearly one-fifth the total length of head; entire surface of head roughened by numerous small tubercles which give the outline of the cheeks an evenly serrate appearance, other sculpture wanting; setæ clear white, truncate or rounded at tip, all arising from prominent tubercles, the dorso-lateral pair at middle of sides of cephalic process longest (63 μ), postoculars only 24 μ , postocellars 30 μ , longest on cheeks 43 μ . *Eyes* small, about 0.18 as long as head, strongly protruding posteriorly, dorsally somewhat larger than ventrally, measuring as follows in μ in one paratype: dorsal length 91, dorsal width 62, dorsal interval 121, ventral length 71, ventral width 54, ventral interval 137. *Ocelli* small, the median one about 16 μ in diameter, the posterior ones 20 μ in diameter, 83 μ apart, and about 70 μ from median ocellus. *Antennæ* about 1.9 times the length of head, segments I and II subequal in length and width, I with sides almost parallel, II goblet-shaped, markedly constricted just beyond base, its width at this level only 0.4 the greatest width near apex, the constricted portion with a strong dorsal carina; III–VI abruptly much narrower than I and II, their long, parallel-sided, slender pedicels constituting, respectively, about 0.6, 0.57, 0.5, and 0.4 of their length; VII and VIII rather firmly attached to each other, the former tapering evenly to base and to apex from a point beyond middle, the latter nearly conical; setæ on I and II stout, blunt, colorless, and arising from strong tubercles, the apical pair on I about 20 μ , those on II about 58 μ ; setæ on distal segments fine and pointed; sense-cones very slender, almost indistinguishable from setæ. *Mouth-cone* heavy, broadly rounded, extending about 143 μ beyond posterior dorsal margin of head,

¹ The color given above is that of fully matured individuals. In teneral ones the browns and blackish browns are less intense, of course; but an interesting fact about their coloration is the persistence, for a time, of the bright crimson-red pigment which has been carried through the larval, prepupal, and pupal stadia and which now forms patches at the base of the head, along the middorsal line and at the sides of the three thoracic and the first abdominal segments, along the sides of the remaining abdominal segments (save only the tube), and in the legs beneath all the darkened areas.

² In life the winged females appear to have a broad, nearly black median streak along the dorsal surface of the abdomen, due to the overlying wings and the close confinement of their fringes in the usual way by retaining setae. Also, the ventriculus is invariably packed full of jet-black fungus spores, and this is always partially visible through the body wall, even before the wings are spread.

about attaining level of epimeral setæ; maxillary palpi long and stout, the second segment 77 μ long, 17 μ thick, and with a stout terminal sense-cone.

Prothorax along median line of pronotum about 0.42 the length of head, its width across coxæ (exclusive of tubercles) 2.3 times its length; all usual setæ present, supported by tubercles, clear white in color, rather stout, somewhat dilated at tip, and measuring as follows in μ : antero-marginals 16, antero-angulars 23, midlaterals 10, epimerals 33, postero-marginals 10; other setæ similar, all small, the largest pair (17 μ) being on the episternum near its anterior angle. *Legs* roughened with numerous tubercles and with the setæ colorless, blunt, and arising from large tubercles; fore coxæ each with two prominent postero-lateral setigerous tubercles, the seta of the anterior one about 51 μ , that of the posterior 49 μ ; fore femora not swollen, fore tarsi unarmed. *Wings* long (1.42 mm.), quite slender beyond basal three-tenths, width of fore pair at middle about 0.086 mm.; fore wings without accessory setæ on posterior margin and without subbasal setæ.

Abdomen long and slender, broadest at segment III, tapering evenly to base of tube, its distal segments measuring approximately as follows in length (μ): VI 273, VII 266, VIII 238, IX 161, X 900, the last (the tube) about 1.75 times the length of head, nine times as long as its basal width, its sides tapering evenly to a very slight dilation near tip, the tip itself rather abruptly narrowed and about half as wide as base, the terminal setæ dark brown, pointed, and about 196 μ in length; all other abdominal setæ pale and short, the large lateral pair on VII, VIII, and IX arising from strongly projecting tubercles and measuring 67, 74, and 46 μ , respectively, the dorsal pair on IX 38 μ ; III-VII each with a small setigerous tubercle just cephalad of the larger one; dorsal and ventral surfaces of abdomen rather evenly polygonally reticulate or subreticulate in the anterior portions of segments II-VII, the posterior portions of the terga minutely tuberculate, those of sterna nearly smooth; IX similarly subreticulate throughout, but more faintly along middle of dorsal surface, X (the tube) with the reticles fainter, elongate, and indistinct posteriorly.

Measurements of macropterous female (paratype, treated with NaOH), in mm.: Length about 4.12 (fully distended, 4.52); head, total median dorsal length 0.515, width across eyes 0.245, least width shortly behind eyes 0.202, greatest width across cheeks (exclusive of tubercles) 0.245, least width near base 0.224, width across basal collar 0.237, length of head in front of eyes 0.098, greatest width in front of eyes 0.140; prothorax, median length of pronotum 0.218, greatest width (inclusive of coxae but exclusive of coxal tubercles) 0.490; mesothorax, greatest width (across anterior angles) 0.476; metathorax, greatest width 0.515; abdomen, greatest width (at segment III, exclusive of tubercles) 0.549; tube (segment X, only), length 0.900, greatest subbasal width 0.098, least apical width 0.048.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	90	94	179	181	173	136	78	47
Width (μ)	58	57	33	36	35	33	30	18

Total length of antenna 0.978 mm.

Female, forma brachyptera.—Nearly identical with the long-winged form in size, color, and structure, excepting for the shorter wings, which vary greatly in size, even in the same individual, extending usually nearly to the first, rarely almost to the third, abdominal segment; eyes and ocelli almost as in the macropterous form.

Male (brachypterous).—Length about 3.3 mm. (fully distended, about 3.7 mm.). Color ordinarily a trifle paler than that of female, because of the presence of more light-reflecting substance in the fat-body; structure almost identical with that of brachypterous female, but ocelli often very small; wings extending about to middle of metathorax.

Measurements of male (paratype, treated with NaOH), in mm: Head, total median dorsal length 0.447, width across eyes 0.195, least width shortly behind eyes 0.181, greatest width across cheeks (exclusive of tubercles) 0.217, least width near base 0.202, width across basal collar 0.206, length of head in front of eyes 0.083, greatest width in front of eyes 0.119; eyes, dorsal length 0.070, dorsal width 0.047, dorsal interval 0.102, ventral length 0.047, ventral width 0.042, ventral interval 0.112; ocelli, diameter 0.011, interval between posterior ones 0.074, their distance from median ocellus 0.061; postocular setæ, length 0.020, interval 0.101, distance from eyes 0.030; postocellar setæ, length 0.024; lateral setæ on head-process, length 0.049; mouth-cone, length beyond dorsal margin of head 0.126; prothorax, median dorsal length of pronotum 0.182, greatest width (inclusive of coxæ but exclusive of coxal tubercles) 0.420; length of prothoracic setæ: antero-marginals 0.013, antero-angulars 0.020, midlaterals 0.007, epimerals 0.031, postero-marginals 0.008, each coxal pair 0.042; mesothorax, greatest width 0.358; metathorax, greatest width 0.360; abdomen, greatest width (at segment III, exclusive of tubercles) 0.388, lengths of abdominal segments: VI 0.245, VII 0.238, VIII 0.232, IX 0.148, X (tube) 0.686, this last with greatest subbasal width 0.081, least apical width 0.044, and length of terminal setæ 0.182; length of larger lateral pair of setæ on abdominal segment VII 0.050, VIII 0.053, IX 0.030, dorsal pair on IX 0.026.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ):	80	86	147	157	155	134	62	39
Width (μ):	49	50	30	31	32	30	27	17
Total length of antenna 0.860 mm.								

FLORIDA: Clearwater, December 21, 1937, Dr. J. Chester Bradley and J. D. H., 40 ♀♀ (12 brachypterous), 22 ♂♂ (including holotype and allotype); Dunedin, Dec. 22, 1937, J. D. H., 1 ♀ (macropterous); St. Petersburg, Dec. 22, 1937, J. D. H., 12 ♀♀ (10 brachypterous), 8 ♂♂; Lake Fern, Dec. 23, 1937, J. D. H., 1 ♂; Homestead, Dec. 30, 1937, J. D. H., 2 ♀♀ (macropterous), 1 ♂; Bonita Springs, Dec. 30, 1937, J. D. H., 7 ♀♀ (brachypterous), 5 ♂♂. All specimens were taken from dead leaves of a low palmetto (*Sabal glabra* Sarg.).

That such a large and distinctive thrips as this could remain so long undiscovered in the State of Florida is no doubt to be explained largely by its restricted habitat. It apparently occurs only on the dead leaves of the

low-growing Dwarf Palmetto or Blue Palm, and only on those leaves that lie close to the ground and which, in dying, have become somewhat folded fan-wise to provide between the folds at the base of the leaf-blade the protection which the thrips prefers or requires. It was discovered by Dr. Bradley, after whom I have named it, near Clearwater, and subsequent collecting on following days extended its known distribution eastward to the Atlantic coast and southward nearly to the tip of Florida—the only parts of the State which were visited in the limited time available.

Its pale color and roughened dorsal surface make it very inconspicuous indeed on the dead leaves which it frequents, and almost certainly represent an adaptation of great protective value to the species. No highlights are reflected by the body surface, and the absence of major setæ from the dorsal and ventral surfaces of the flattened body permit it to reach better shelter and more food than would otherwise be available. The elevation of the posterior ocelli and their anterior position, thus permitting vision to the side, as well as the lateral position of the eyes, are likewise clearly adaptive.

The food of the species is the spores of a fungus which grows among the more humid folds of the dead leaves, usually on the lower surface; and the stomachs of the thrips are almost invariably filled with these black unicellular structures.

All individuals, with the exception of those which have recently emerged from the pupal exuviae, are covered with an accumulation of spores, tiny plant fragments, and other detritus from the environment, all held quite firmly to the insect's body by a thin grayish film of some organic substance. This can be picked off the specimens laboriously with a needle or bristle, with the certainty of removing a number of setæ in the process; but if, in mounting, the specimens are to be cleared in xylene, it will be found that the currying operation had better be postponed until the xylene is reached, when careful massage and some picking with a delicate camel's hair brush will clean the specimens perfectly.

In food habits, and to some extent in color, particularly in that of the legs, *Atractothrips bradleyi* bears a marked resemblance to the Panamanian *Zeugmatothrips priesneri* and the Costa Rican *Z. hoodi*.